UNICAM
Università di Camerino
1336

Scuola di Scienze e Tecnologie
Sezione di Geologia

Camerino 21 luglio 2025 ore 11-13
Sala stampa Chip - via Madonna delle Carceri

Applications of Rubber-Based Devices for Improving the Seismic Resilience of Structures

prof. **Enrico Tubaldi**
Univ. of Strathclyde
Glasgow

referente: andrea.dallasta@unicam.it

Abstract
This presentation explores recent advances in rubber-based technologies aimed at enhancing the seismic resilience of civil engineering structures.
It begins with an overview of the historical and modern use of rubber in structural and earthquake engineering, followed by insights from experimental and modelling studies on low-shape-factor bearings, which offer cost-effective and lightweight solutions for seismic isolation.
The development and validation of innovative fibre-reinforced elastomeric isolators (FREIs), as part of the ERIES-FREISUST project, demonstrate the viability of sustainable, high-performance base isolation for low-rise buildings.
The ERIES-FLEJOI project is also presented, introducing flexible and decoupling rubber joint systems to mitigate seismic damage in masonry-infilled reinforced concrete frames.
Full-scale shake table tests, numerical simulations, and system identification analyses confirm the superior performance of these jointed infill systems in terms of drift control and non-structural damage mitigation.
The presentation concludes with a look at smart rubber bearing concepts and ongoing initiatives toward commercialisation and real-world implementation.
Together, these developments signify a leap forward in integrating optimized rubber components into seismic protection strategies for both existing and new structures.

Short bio
prof. Enrico Tubaldi, Univ. of Strathclyde

Dr Enrico Tubaldi is a Reader in Civil & Environmental Engineering at the University of Strathclyde, Glasgow, where he leads research on the resilience of structures and infrastructure to natural hazards .
After earning his PhD in Structures and Infrastructure from the Polytechnic University of Marche (Italy), he held a Marie Curie Fellowship at Imperial College London before moving to Strathclyde in 2017

His multidisciplinary expertise encompasses seismic isolation, vibration control, flood risk assessment, computational structural mechanics, and risk assessment and monitoring. of structures, with a particular focus on rubber-based devices such as elastomeric and high-damping natural rubber bearings
He has led numerous EU- and UK-funded projects on these topics (total funding £2.8m as PI and £2m as co-I).

Dr Tubaldi is a highly published scholar (over 80 journal papers) with awards such as the recent 2025 Scottish Power Innovation Forum Award (Project of the Year).

He is an invited speaker at international workshops and conferences, actively mentors PhD students, and serves as Associate Editor and reviewer for multiple journals.